

COMMONALITY AREAS IN INTELLIGENCE
SYSTEM PROBLEMS

Attachment 2

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2 DEC 1970

COMMONALITY INTELLIGENCE PROBLEM AREAS

These listings below are technical areas which are related to each other in any mathematical model of the physical situation. As such, a solution in one area has close relevance to group problems. A central repository for these problem solutions would constitute a tangible Agency asset. In this manner, cumulative experience banks would accrue. Such a procedure would be cost effective since new intelligence applications would be able to draw upon the repository of building-blocks in a problem area.

Trajectory Analysis

- (1) Short-Range Emplacement
- (2) Long-Range Emplacement 25X1
- (3) Missile Synthesis
- (4) Telemetry Analysis
- (5) Spacecraft Analysis
- (6) Re-entry Dynamics
- (7) Aerodynamic Analysis
- (8) Ballistic Trajectories
- (9) ABM Assessment
- (10) Torpedo Dynamics

Spatial-Temporal Processors

- (1) Array Synthesis
- (2) Phased Antennas
- (3) ECM Approaches

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GROUP 1
Excluded from automatic

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- (4) Fractional Wavelength Apertures
- (5) Conformal Sensors
- (6) Optical Processing Transforms
- (7) Pattern Transformations
- (8) Multipath Analysis
- (9) Aortic Near-Field Analysis
- (10) Holographic Processing
- (11) Wave Front Analysis
- (12) Non-Conventional Lenses
- (13) Non-Explicit Geometry Arrays
- (14) Side Lobe Exploitation
- (15) Background Coupline
- (16) Virtual Arrays
- (17) Localization Arrays
- (18) Radiometer Analysis

Propagation and Scattering

- (1) Room Multipath
- (2) Composite Structure Propagation
- (3) Raytrace - Electromagnetic
- (4) Raytrace - Acoustic
- (5) Raytrace - Seismic

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- (6) E/M Reflection/Absorption
- (7) Mie Effect - Forward Scattering
- (8) Scatter Phenomena - EM - Tropospheric
- (9) Scatter Phenomena - Optics - Aerosols
- (10) Scatter Phenomena - Acoustics/Seismics

Diffusion

- (1) Thermal Transient Analysis
- (2) Reactor Buckling
- (3) Gas Dynamics
- (4) Field Effects

Design Aids

- (1) CSMP
- (2) ECAP
- (3) Recorder Evaluation
- (4) Non-Conventional Instrumentation
- (5) Transducer Modeling

Field Gradient Analysis

- (1) Hydrodynamic Potential Flow
- (2) Aerodynamic Analysis
- (3) Circulation Problem Areas

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- (4) Near-Field Coupling
- (5) Skin Effect Problems
- (6) Meteorological Control
- (7) Gravimeters, Field Sensors, Specialized Energy Conversion

Biomedical Data

- (1) EKG
- (2) Pulse Rate
- (3) EEG Analysis
- (4) Plythysmogram
- (5) Polygraph
- (6) Remote Physiological Monitoring

Speech

- (1) Speech Recognition
- (2) Speech S/N Enhancement
- (3) Speech Synthesis
- (4) Speeded Speech
- (5) Keyword Recognition

Modulation

- (1) Noise Modulation
- (2) Environmental Sampling

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- (3) Noise Immune Schemes
- (4) Error Converting Codes
- (5) Analog, Pulse Modulation Schemes

Servo Mechanisms

- (1) Bang-Bang Controls
- (2) System Stability
- (3) Sensitivity Studies
- (4) Simulation; Optimization

OPS Research

- (1) Mission Algorithm
- (2) Threat Assessment
- (3) Value Analysis
- (4) Delphi Interpretation
- (5) Quality Control Algorithm

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